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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,368	09/16/2003	Yoshitarou Yazaki	01-241-DIV	9414

23400 7590 02/13/2006

POSZ LAW GROUP, PLC
12040 SOUTH LAKES DRIVE
SUITE 101
RESTON, VA 20191

EXAMINER

ARBES, CARL J

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/662,368	YAZAKI ET AL.	
	Examiner	Art Unit	
	C. J. Arbes	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>herein</u> . | 6) <input type="checkbox"/> Other: _____ |

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Claims 6-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 6 Applicants recite ...interconnecting electrically a plurality of conductor patterns with a unified conductive compound.. . The Office wishes to have Applicants clarify which is meant by ...with a unified conductive compound.. such that it is meaningful to one of ordinary skill in the art; furthermore in claims 6 relating to the language ... the conductive compound, which is adjacent to an area contacting the conductor pattern, ... Applicants are requested to clarify this language such that a POSITA would have little or no difficulty in understanding this language and therefore the claimed invention; furthermore in the same (or last indent) of claim 6 Applicants recite ...such a manner that the farther from the conductor patterns on the side wall... is not clear and therefore Applicants are advised to amend such language so that the claimed invention does particularly point out and distinctly claim the invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6-8, as understood are further rejected under 35 U.S.C. 102(e) as being anticipated by Sasaoka et al (Pat No. 6,010,769); hereinafter Sasaoka et al. This prior

(of Record)

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art document speaks for itself for all that is disclosed therein. The Examiner moreover has also briefly provided additional information *infra* to insure or make it easier for Applicants to grasp the content in Sasaoka et al.

Claims 9-15, as understood, are further rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaoka et al. Sasaoka et al teach a wiring board comprising an insulating film (11b) which has wiring layers (12a and 13a) or conductor patterns. Conductive pillars (14) which can be made from conductive resin or conductive paste (Cf. Col 15) pierces the insulating layer (Col 15) and is used to interconnect conductive patterns on major surfaces of a wiring board. The insulative layer and the conductive layer are pressed with heat such that the a portion of the conductive pillar protrudes into the vias and the via walls are caused to be deformed (Cf. Col 24). The shape of the resultant wall deformation is such as is seen in e.g. Figures 1, 4, 5, 8, 9A, 11A and B, 13 A and B, 14 D,E,F, G, H, 18, 19B, C, D, E, F, G, 22 and 23 , that is, there is an arch shape in a cross sectional plane passing through the center axis of a via hole as result of this process. It would have been obvious to a POSITA to use materials such that the volume of the conductive material is reduced relative to the volume of the interlayer material. This would be so since the specific volume of the conductive material is crystalline with corresponding lower specific volume vis a vis a relative higher specific volume of any polymeric material (which is a super-cooled glass). That is the polymer compound. Would have higher specific volume do to the longer molecular chains and hence requires relatively more volume than the conductive material. One can almost say with a high degree of certainty that the limitation in claim 9 is inherent in the choice

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of materials As applied to claims 10 and 13-15 it is held that the numerical limitations I these claimsa would each have been obvious to a POSITA given the evidence in Sasaoka et al. Alternatively these limitations are held to be design choice inasmuch as Applicants do not disclose any specific problem which is solved or any particular purpose therefore. As applied to claim11 it is noted at least in Col. 28 that metal particles can be used for the interlayer connecting process. As applied to claim 12 it is held to have been obvious to provide that the melting points of the conductor patterns would have to be higher that the melting temperature of the interconnecting layer since one would almost never want or desire the conductive patterns to melt before or during the time when the interlayer conductive material is being processed to provide a solid and effective interconnection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. J. Arbes whose telephone number is 571-272-4563. The examiner can normally be reached on M, T, R and F from 8 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Vo, can be reached on 571-272-4563. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).


C. J. Arbes
Primary Examiner
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